

1. A system for monitoring a physical variable at a plurality of sites comprising: a plurality of radio frequency transponders having unique identifications comprising:
  - a) a sensor for measuring said physical variable said sensor having an output representative of said physical variable;
  - b) a tuned circuit for receiving and resonating radio frequency signals;
  - c) a power circuit for converting the received radio frequency signals to direct current power for use by said transponder; and
  - d) a modulator for modulating the radio frequency signals having an input electrically connected to the output of said sensor whereby the resonant radio frequency signal is representative of the transponder unique identification and the physical variable value; and at least one radio frequency reader having a radio frequency transmitter and receiver to supply radio frequency signals to said transponder, and to detect the modulated radio frequency signal from said transponder.
2. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein said radio frequency reader further comprises a demodulator circuit for reading the unique identifications and physical variable values from said plurality of transponders and a microcontroller having an input coupled to said demodulator circuit for storing and processing said physical variable values.
3. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein the physical variable is temperature.
4. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein the physical variable is pressure.

5. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein the physical variable is humidity.
6. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein the physical variable is flow rate.
7. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein the physical variable is acceleration.
8. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein the physical variable is force.
9. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein said sensor is a micro electro-mechanical sensor.
10. A system for monitoring a physical variable at a plurality of sites as claimed in claim 9 wherein said sensor measures temperature.
11. A system for monitoring a physical variable at a plurality of sites as claimed in claim 1 wherein said plurality of transponders are disposed subcutaneously in a plurality of herd animals.
12. A system for monitoring body temperatures in a plurality of animals comprising:  
a plurality of radio frequency transponders having unique identifications comprising:
  - a) a sensor for measuring body temperature having an output representative thereof;
  - b) a tuned circuit for receiving and resonating radio frequency signals;
  - c) a power circuit for converting the received radio frequency signals to direct current power for use by said transponder; and
  - d) a modulator for modulating the radio frequency signals having an input electrically connected to the output of said sensor whereby the resonant radio

frequency signal is representative of the transponder unique identification and the temperature value measured by said sensor; and

at least one radio frequency reader having a radio frequency transmitter and receiver to supply radio frequency signals to said transponder, and to detect the modulated radio frequency signal from said transponder, said reader further having a demodulator for separating the transponder unique identification and the temperature value from each of said modulated radio frequency signals and a microprocessor for storing the each transponder unique identification and temperature value.

13. A system for monitoring body temperatures in a plurality of animals as claimed in claim 12 wherein said transponders are disposed subcutaneously of said plurality of animals.
14. A system for monitoring body temperatures in a plurality of animals as claimed in claim 12 wherein said transponders are attached to an ear of each of said plurality of animals.
15. A method for monitoring body temperatures in a plurality of herd animals for detection of bovine respiratory disease comprising the steps of:
  - a) providing each animal with a radio frequency identification transponder having a temperature sensor for sensing animal temperature;
  - b) providing at least one radio frequency receiver and transmitter for transmitting radio frequency signals to said transponders and receiving radio frequency signals therefrom representative of animal temperature;
  - c) providing a microcontroller having a memory for storing a plurality of temperature readings from said herd animals; and

- d) providing an alarm indication when a temperature reading from any herd animal is above a predetermined maximum.